

CLAIMS

1. A gene fragment represented by SEQ ID NO: 1, which contains one or more nucleotides at any of positions 3, 15, 69, 95, 121, 123, 132, 136, 138, 139, 231, 424, 549, 557, 603, 700, 701, 726, 727, 728, 734, 735, 738, and 804 in a gene (*gyrB*) encoding a DNA gyrase β subunit of SEQ ID NO: 1 in the sequence listing, said position being unique to *Vibrio vulnificus* bacterial group, where said gene fragment can be used for designing a specific gene amplification primer or a specific probe.
2. A gene amplification primer, which contains a strand or a complementary strand thereof containing 15 or more continuous nucleotides, where one or more nucleotides are nucleotides at any of positions 3, 15, 69, 95, 121, 123, 132, 136, 138, 139, 231, 424, 549, 557, 603, 700, 701, 726, 727, 728, 734, 735, 738, and 804 in the gene (*gyrB*) encoding the DNA gyrase β subunit of SEQ ID NO: 1 in the sequence listing, said positions being unique to the *Vibrio vulnificus* bacterial group.
3. The gene amplification primer of claim 2, wherein a region that contains, at a high frequency, a position(s) unique to *Vibrio vulnificus* as specified in claim 2 is used.
4. The gene amplification primer of claim 3, which contains a strand or a complementary strand thereof containing nucleotides at positions 3 and 15 of SEQ ID NO: 1 in the sequence listing.
5. The gene amplification primer of claim 3, which contains a strand or a complementary strand thereof containing 2 or more nucleotides at any of positions 121, 123, 132, 136, 138, and 139 of SEQ ID NO: 1 in the sequence listing.
6. The gene amplification primer of claim 3, which contains a strand or a complementary strand thereof containing nucleotides at positions 549 and 557 of

SEQ ID NO: 1 in the sequence listing.

7. The gene amplification primer of claim 3, which contains a strand or a complementary strand thereof containing nucleotides at positions 700 and 701 of SEQ ID NO: 1 in the sequence listing.

8. The gene amplification primer of claim 3, which contains a strand or a complementary strand thereof containing 2 or more nucleotides at any of positions 726, 727, 728, 734, 735, and 738 of SEQ ID NO: 1 in the sequence listing.

9. The gene amplification primer of claim 2, wherein the 3' terminal nucleotide is a nucleotide at a position that is unique to *Vibrio vulnificus* as specified in claim 2.

10. The gene amplification primer of claim 2, which contains 5'-gtgtctggcgggtctt-3' or a complementary strand corresponding thereto.

11. The gene amplification primer of claim 2, which contains 5'-gatgcaccgcttgctatcatc-3' or a complementary strand corresponding thereto.

12. The gene amplification primer of claim 2, which contains 5'-tgcggaacttyacttcrct-3' or a complementary strand corresponding thereto.

13. The gene amplification primer of claim 2, which contains 5'-gtccatgtagctgttcart-3' or a complementary strand corresponding thereto.

14. The gene amplification primer of claim 2, which contains 5'-ttgtctgccatgaaggattcc-3' or a complementary strand corresponding thereto.

15. A probe for detecting, quantifying, or identifying *Vibrio vulnificus*, which contains 15 or more continuous nucleotides, where one or more nucleotides are nucleotides at any of positions 3, 15, 69, 95, 121, 123, 132, 136, 138, 139, 231, 424, 549, 557, 603, 700, 701, 726, 727, 728, 734, 735, 738, and 804 in the gene (*gyrB*) encoding the DNA gyrase β subunit of SEQ ID NO: 1 in the sequence listing, said positions being unique to the *Vibrio vulnificus* bacterial group.

16. A gene fragment represented by SEQ ID NO: 2, which contains one or more nucleotides at any of positions 21, 33, 60, 120, 126, 235, 260, 312, 315, 340, 354,

396, 414, 459, 462, 570, 686, 689, 732, 750, and 756 in a gene (*rpoD*) encoding an RNA polymerase σ 70 factor of SEQ ID NO: 2 in the sequence listing, said positions being unique to the *Vibrio vulnificus* bacterial group, where such gene fragment can be used for designing a specific gene amplification primer or a specific probe.

17. A gene amplification primer, which contains a strand or a complementary strand thereof containing 15 or more continuous nucleotides, where one or more nucleotides are nucleotides at any of positions 21, 33, 60, 120, 126, 235, 260, 312, 315, 340, 354, 396, 414, 459, 462, 570, 686, 689, 732, 750, and 756 in the gene (*rpoD*) encoding the RNA polymerase σ 70 factor of SEQ ID NO: 2 in the sequence listing, said positions being unique to the *Vibrio vulnificus* bacterial group.

18. The gene amplification primer of claim 17, wherein a region that contains, at a high frequency, a position(s) unique to *Vibrio vulnificus* as specified in claim 17 is used.

19. The gene amplification primer of claim 18, which contains a strand or a complementary strand thereof containing nucleotides at positions 21 and 33 of SEQ ID NO: 2 in the sequence listing.

20. The gene amplification primer of claim 18, which contains a strand or a complementary strand thereof containing nucleotides at positions 120 and 126 of SEQ ID NO: 2 in the sequence listing.

21. The gene amplification primer of claim 18, which contains a strand or a complementary strand thereof containing nucleotides at positions 312 and 315 of SEQ ID NO: 2 in the sequence listing.

22. The gene amplification primer of claim 18, which contains a strand or a complementary strand thereof containing nucleotides at positions 340 and 354 of SEQ ID NO: 2 in the sequence listing.

23. The gene amplification primer of claim 18, which contains a strand or a complementary strand thereof containing nucleotides at positions 396 and 414 of

SEQ ID NO: 2 in the sequence listing.

24. The gene amplification primer of claim 18, which contains a strand or a complementary strand thereof containing nucleotides at positions 459 and 462 of SEQ ID NO: 2 in the sequence listing.

25. The gene amplification primer of claim 18, which contains a strand or a complementary strand thereof containing nucleotides at positions 686 and 689 of SEQ ID NO: 2 in the sequence listing.

26. The gene amplification primer of claim 18, which contains a strand or a complementary strand thereof containing 2 or more nucleotides at any of positions 732, 750, and 756 of SEQ ID NO: 2 in the sequence listing.

27. The gene amplification primer of claim 17, wherein the 3' terminal nucleotide is a nucleotide at a position that is unique to *Vibrio vulnificus* as specified in claim 17.

28. The gene amplification primer of claim 17, which contains 5'-aatcgacatcgctaamega-3' or a complementary strand corresponding thereto.

29. The gene amplification primer of claim 17, which contains 5'-gttcgacaaagtacaagcg-3' or a complementary strand corresponding thereto.

30. The gene amplification primer of claim 17, which contains 5'-tcaagcagygttcagag-3' or a complementary strand corresponding thereto.

31. The gene amplification primer of claim 17, which contains 5'-aatggcgctagagaag-3' or a complementary strand corresponding thereto.

32. The gene amplification primer of claim 17, which contains 5'-cktraatgaacatggtcga-3' or a complementary strand corresponding thereto.

33. The gene amplification primer of claim 17, which contains 5'-gaactgatgctcgatgtgtt-3' or a complementary strand corresponding thereto.

34. The gene amplification primer of claim 17, which contains 5'-aatgtcttcttcgtgmagyt-3' or a complementary strand corresponding thereto.

35. The gene amplification primer of claim 17, which contains 5'-ttgatgttgtyactgaaagc-3' or a complementary strand corresponding thereto.

36. A probe for detecting, quantifying, or identifying *Vibrio vulnificus*, which contains 15 or more continuous nucleotides, where one or more nucleotides are nucleotides at any of positions 21, 33, 60, 120, 126, 235, 260, 312, 315, 340, 354, 396, 414, 459, 462, 570, 686, 689, 732, 750, and 756 in the gene (*rpoD*) encoding the RNA polymerase σ 70 factor of SEQ ID NO: 2 in the sequence listing, said positions being unique to the *Vibrio vulnificus* bacterial group.

37. A gene fragment represented by SEQ ID NO: 3, which contains one or more nucleotides at any of positions 9, 81, 138, 153, 172, 180, 208, 228, 237, 288, and 540 in a gene (*recA*) encoding RecA of SEQ ID NO: 3 in the sequence listing, said positions being unique to the *Vibrio vulnificus* bacterial group, where said gene fragment can be used for designing a specific gene amplification primer or a specific probe.

38. A gene amplification primer, which contains a strand or a complementary strand thereof containing 15 or more continuous nucleotides, where one or more nucleotides are nucleotides at any of positions 9, 81, 138, 153, 172, 180, 208, 228, 237, 288, and 540 in the gene (*recA*) encoding the RecA of SEQ ID NO: 3 in the sequence listing, said positions being unique to the *Vibrio vulnificus* bacterial group.

39. The gene amplification primer of claim 38, wherein a region that contains, at a high frequency, a position(s) unique to *Vibrio vulnificus* as specified in claim 38 is used.

40. The gene amplification primer of claim 39, which contains a strand or a complementary strand thereof containing nucleotides at positions 138 and 153 of SEQ ID NO: 3 in the sequence listing.

41. The gene amplification primer of claim 39, which contains a strand or a complementary strand thereof containing nucleotides at positions 172 and 180 of SEQ ID NO: 3 in the sequence listing.

42. The gene amplification primer of claim 39, which contains a strand or a complementary strand thereof containing 2 or more nucleotides at any of

positions 208, 228, and 237 of SEQ ID NO: 3 in the sequence listing.

43. The gene amplification primer of claim 39, wherein the 3' terminal nucleotide is a nucleotide at a position that is unique to *Vibrio vulnificus* as specified in claim 39.

44. The gene amplification primer of claim 38, which contains 5'-cctgtgtatgcgaagaarctt-3' or a complementary strand corresponding thereto.

45. The gene amplification primer of claim 38, which contains 5'-tatcgaccarttrtttgta-3' or a complementary strand corresponding thereto.

46. The gene amplification primer of claim 38, which contains 5'-aagmgcatcacagatttcaa-3' or a complementary strand corresponding thereto.

47. The gene amplification primer of claim 38, which contains 5'-tcaaccgcmctgagcgagca-3' or a complementary strand corresponding thereto.

48. A probe for detecting, quantifying, or identifying *Vibrio vulnificus*, which contains 15 or more continuous nucleotides, where one or more nucleotides are nucleotides at any of positions 9, 81, 138, 153, 172, 180, 208, 228, 237, 288, and 540 in the gene (*recA*) encoding the RecA of SEQ ID NO: 3 in the sequence listing, said positions being unique to the *Vibrio vulnificus* bacterial group.

49. A method for detecting, quantifying, or identifying *Vibrio vulnificus*, wherein the primer of any one of claims 2 to 14, 17 to 35, and 38 to 47 is used.

50. A kit for detecting, quantifying, or identifying *Vibrio vulnificus*, wherein the primer of any one of claims 2 to 14, 17 to 35, and 38 to 47 is used.